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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,961	08/28/2003	Meyer Steinberg	03-STE-01CIP	1960
24221	7590	06/16/2006	EXAMINER	
LOUIS VENTRE, JR 2483 OAKTON HILLS DRIVE OAKTON, VA 22124-1530			RUTHKOSKY, MARK	
			ART UNIT	PAPER NUMBER

1745

DATE MAILED: 06/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No. .

10/604,961

Applicant(s)

STEINBERG, MEYER

Examiner

Mark Ruthkosky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Notice of Allowance Vacated*

Prosecution on the merits of this application is reopened on claims 1-9, considered unpatentable for the reasons indicated in the new rejections noted below.

An examiner's amendment to the record appeared in the Notice of allowance of 10/31/2005. The claims had been amended to remove the term "for" which the examiner indicated as implying intended use of the steps of the method. By removing the word "for", the steps were positively recited in the claim.

In the amendment after allowance of 11/10/2005, applicant returned the word "for" to the claims in order to present them in their original form. Applicant has stated their intention to invoke 35 U.S.C. 6<sup>th</sup> paragraph with regard to step plus function limitations in the claims.

The recitation of the word "for" in the claims are noted:

In claim 1, line 2, after the word "steps."

In claim 2, line 4, after the word "step."

In claim 2, line 7, after the word "step."

In claim 3, line 1, after the word "step."

In claim 4, line 1, after the word "step."

In claim 5, line 1, after the word "step."

In claim 6, line 1, after the word "step."

In claim 7, line 1, after the word "step."

In claim 8, line 1, after the word "step."

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In claim 9, line 1, after the word "step."

Applicant is advised that the Notice of Allowance mailed is vacated. If the issue fee has already been paid, applicant may request a refund or request that the fee be credited to a deposit account. However, applicant may wait until the application is either found allowable or held abandoned. If allowed, upon receipt of a new Notice of Allowance, applicant may request that the previously submitted issue fee be applied. If abandoned, applicant may request refund or credit to a specified Deposit Account.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-9 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the steps described in the claims, does not reasonably provide enablement for equivalent steps to those in the claims. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. Applicant has not enabled more than one step that corresponds to the claimed steps in order to meet the requirements of 35 U.S.C. 112, 6<sup>th</sup> paragraph. While the claims are enabled for the specific steps claimed, the specification is does not enable any equivalent steps for the claimed steps.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant has invoked 35 U.S.C. 112, 6<sup>th</sup> paragraph, however, the claims do not meet the criteria required by 35 U.S.C. 112, 6<sup>th</sup> paragraph, and therefore, the claims are indefinite for not distinctly claiming the subject matter which applicant regards as the invention.

The following is from MPEP 2181, II. WRITTEN DESCRIPTION NECESSARY TO SUPPORT A CLAIM LIMITATION WHICH INVOKES 35 U.S.C. 112, SIXTH PARAGRAPH. 35 U.S.C. 112, sixth paragraph states that a claim limitation expressed in means-plus-function language “shall be construed to cover the corresponding structure... described in the specification and equivalents thereof.” “If one employs means plus function language in a claim, one must set forth in the specification an adequate disclosure showing what is meant by that language. If an applicant fails to set forth an adequate disclosure, the applicant has in effect failed to particularly point out and distinctly claim the invention as required by the second paragraph of section 112.” In re Donaldson Co., 16 F.3d 1189, 1195, 29 USPQ2d 1845, 1850 (Fed. Cir. 1994) (in banc).

The proper test for meeting the definiteness requirement is that the corresponding structure (or material or acts) of a means (or step)-plus-function limitation must be disclosed in the specification itself in a way that one skilled in the art will understand what structure (or material or acts) will perform the recited function. The disclosure of the structure (or material or acts) may be implicit or inherent in the specification if it would have been clear to those skilled in the art what structure (or material or acts) corresponds to the means (or step)-plus-function

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claim limitation. See *Id.* at 1380, 53 USPQ2d at 1229; *In re Dossel*, 115 F.3d 942, 946-47, 42 USPQ2d 1881, 1885 (Fed. Cir. 1997). If there is no disclosure of structure, material or acts for performing the recited function, the claim fails to satisfy the requirements of 35 U.S.C. 112, second paragraph.

***Improper Language for 112 6<sup>th</sup> Paragraph***

MPEP 2181 includes a section titled, “Identifying a 35 U.S.C. 112, Sixth Paragraph Limitation.” This section sets forth guidelines for the examination of 35 U.S.C. 112, sixth paragraph, “means or step plus function” limitations in a claim. Section I. Titled, LANGUAGE FALLING WITHIN 35 U.S.C. 112, SIXTH PARAGRAPH includes guidelines for when a claim limitation invokes 35 U.S.C. 112, sixth paragraph. This section of the office action cites pertinent sections of MPEP 2181 that correspond to the rejections above.

A claim limitation will be interpreted to invoke 35 U.S.C. 112, sixth paragraph, if it meets the following 3-prong analysis:

- (A) the claim limitations must use the phrase “means for ” or “step for; ”
- (B) the “means for ” or “step for ” must be modified by functional language; and
- (C) the phrase “means for ” or “step for ” must not be modified by sufficient structure, material or acts for achieving the specified function.

With respect to the first prong of this analysis, a claim element that does not include the phrase “means for” or “step for” will not be considered to invoke 35 U.S.C. 112, sixth paragraph.

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Applicant's claims meet this requirement. If a claim limitation *does* include the phrase "means for" or "step for," that is, the first prong of the 3-prong analysis is met, but the examiner determines that either the second prong or the third prong of the 3-prong analysis is not met, then in these situations, the examiner must include a statement in the Office action explaining the reasons why a claim limitation which uses the phrase "means for" or "step for" is not being treated under 35 U.S.C. 112, sixth paragraph. Accordingly, these guidelines provide applicants with the opportunity to either invoke or not invoke 35 U.S.C. 112, sixth paragraph, based upon a clear and simple set of criteria.

With respect to the second prong of this analysis, it must be clear that the element in the claims is set forth, at least in part, by the function it performs as opposed to the specific structure, material, or acts that perform the function. This prong of the test is not met as elements in the claims are set forth by the specific structure, material, or acts that perform the function. In reviewing claim 1-step 1, if the function of the step is "using" as noted by applicant, then the step is clearly set forth by the specific structure, material, and acts that perform the function, including an Electric Arc Hydrogen Plasma Black Reactor, and materials produced, used and consumed. The other claimed method steps do not meet the second prong of this test by the same reasoning.

With respect to the third prong of this analysis, MPEP 2181 states that even when a claim element uses language that generally falls under the step-plus-function format, 112 ¶ 6 still does not apply when the claim limitation itself recites sufficient acts for performing the specified function. Again, in claim 1-step 1, the claim limitation of "using an Electric Arc Hydrogen Plasma Black Reactor" to give the claimed materials produced, used and consumed, recites

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sufficient acts for performing the specified function. The other claimed method steps do not meet the third prong of this test by the same reasoning.

*Allowable Subject Matter*

Claims 1-9 appear to include subject matter allowable over the prior art.

The following is an examiner's statement of reasons for indicating allowable subject matter:

The instant claims are to a method for the production of energy, carbon, carbon monoxide and hydrogen from a carbonaceous fuel in a combined cycle, the method comprising

(a) a step using an electric arc hydrogen plasma black reactor wherein hydrogen, carbon monoxide, carbon, ash and sulfur are produced and used; and,

(b) a step using a direct carbon fuel cell wherein a molten salt delivers the carbon produced in step (a) as a feedstock and wherein electricity and hot carbon dioxide gas are produced and used.

The method further includes steps of using of the products of this method in further reactions to produce hydrogen and electricity, as described in the instant specification and specifically in the figures.

The prior art does not teach a method of using an electric arc hydrogen plasma black reactor to produce hydrogen, carbon monoxide, carbon, ash and sulfur followed by the step of using a direct carbon fuel cell wherein a molten salt delivers the carbon produced in step (a) to the direct carbon fuel cell producing hydrogen and electricity. Even if a method of using an



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electric arc hydrogen plasma black reactor to produce hydrogen, carbon monoxide, carbon, ash and sulfur is considered an obvious means for producing carbon, there is no motivation provided in the prior art to use a molten salt to deliver the carbon produced in step (a) to the direct carbon fuel cell.

The most pertinent prior art includes Cocks et al. (US 5,298,340), which teaches carbon-ion electrolytes in a carbon fuel cell. The carbon is directly added to a molten metal electrolyte. The process, however, does not teach the use of an electric arc hydrogen plasma black reactor to produce carbon followed by using a molten salt to deliver carbon as a feedstock to the fuel cell. In addition, Cooper et al. (US 2002/0106549) teaches a high temperature molten electrolyte fuel cell that directly converts ash-free carbon fuel to electrical energy. The method includes heating a carbon fuel cell to produce a molten electrolyte. The process, however, does not teach the use of an electric arc hydrogen plasma black reactor to produce carbon followed by using a molten salt to deliver carbon as a feedstock to the fuel cell.

#### ***Examiner Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free.)

Mark Ruthkosky

Primary Patent Examiner

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*Mark Ruthkosky*  
5-2-06